What Is Claimed Is:

1. A method for operating a broadband lambda sensor (10) for determining the oxygen concentration in the exhaust gas of an internal combustion engine operated with a fuel-air mixture, having a Nernst cell (11) that has a measurement electrode (12) and a reference electrode (13) that is exposed to a reference gas in a reference canal (15), and that has a pump cell (16) having an outer electrode (18) that is exposed to the exhaust gas, and having an inner electrode (17) that is situated with the measurement electrode (12) in a measurement chamber (20) that is separated from the exhaust gas by a diffusion barrier (21), in which a pump voltage (U_P) is applied to the pump cell (16), this voltage being set dependent on a Nernst voltage (U_N) that is tapped at the Nernst cell (16) and that corresponds to the oxygen concentration in the measurement chamber (20), and, dependent on the oxygen content of the exhaust gas, driving a cathodic or anodic pump current (I_P) via the pump cell (16), this current being cathodic during stable operation of the internal combustion engine with a fuel-air mixture in the lean range (lean operation) and being anodic during stable operation of the internal combustion engine with a fuel-air mixture in the rich range (rich operation), and in which the polarity of the pump voltage (U_P) is repeatedly briefly reversed during lean operation, so that a pump current (I_P) oriented in the opposite direction briefly arises,
wherein the repeated reversal of polarity of the pump voltage (U_P) is carried out during the duration of a secondary fuel injection in the lean operation of the internal combustion engine (31) and/or during the warmup phase of the lambda sensor (10).

2. The method as recited in Claim 1,
wherein for the repeated reversal of polarity of the pump voltage (U_P), a sequence of voltage pulses having constant amplitude is applied to the pump cell (16), and an effective

pump current (I_P) is set through pulse width modulation of the voltage pulses dependent on the Nernst voltage (U_N) of the Nernst cell (11).

3. The method as recited in Claim 1,
wherein for the repeated reversal of polarity of the pump voltage (U_P), a sequence of voltage pulses having constant pulse width is applied to the pump cell (16), and an effective pump current (I_P) is set by modifying the amplitudes of the voltage pulses dependent on the Nernst voltage (U_N) of the Nernst cell (11).

4. The method as recited in Claim 2 or 3,
wherein the frequency of the pulse sequence is selected at 10 - 2000 Hz, preferably 500 Hz.

5. The method as recited in one of Claims 1 through 4,
wherein the frequency of the pulse sequence is selected equal to the call rate of the lambda signal for setting the fuel-air mixture of the internal combustion engine (31).

6. The method as recited in one of Claims 1 through 5,
wherein the operating temperature of the lambda sensor (10) is increased for the duration of the secondary injection and/or the warmup phase of the lambda sensor (10).

7. The method as recited in one of Claims 2 through 6,
wherein the pulsed operation of the pump cell (16) is maintained continuously in lean and rich operation of the internal combustion engine (31).